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PATENT
Attorney Docket No. 18950-71

CERTIFICATE OF TRANSMISSION/MAILING

I certify that on March 18, 2002, which is the date I am signing this certificate, this correspondence and all identified attachments are being sent to the Commissioner for Patents, via United States mail and addressed to Commissioner for Patents, Washington, DC 20231

Florence Thys-Doucet

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(Signature of person mailing paper)

Serial No. 09/991,429

Filed: November 16, 2001

**Title: APPARATUS AND METHOD FOR
CARRYING OUT ANALYSIS OF
SAMPLES USING SEMI-REFLECTIVE
BEAM RADIATION INSPECTION**

Applicant: Gordon

Group Art Unit No. 2877

Examiner: Unknown

Serial No. of Parent: 09/665,930

Filed: September 20, 2000

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner of Patents
Washington, D.C. 20231

SUPPLEMENTAL AMENDMENT

Sir:

Please amend the above-identified application as follows prior to examination thereof:

In the Statement of Related Cases

Set forth on the "Added Page(s) for Special Comments for Non Application Transmittal" please amend the statement to read as follows: a marked up copy of the appended Statement is attached to show changes.

Please amend as follows:

This Application Is A Divisional Of Copending Application Serial No. 09/665,930, Filed September 20, 2000 now United States Letters Patent No. 6,327,031 , Which Is A Continuation Of Application Serial No. 09/156,475, Filed September 18, 1998, Now U.S. Patent No. 6,256,088, Which Is A Continuation Of Application Serial No. 08/809,402, Now U.S. Patent No. 5,892,577, Filed July 28, 1997; Which Is A 371 Continuation Of PCT/GB95/02186, Filed September 15, 1995, Which Claims Priority From UK Patent Application No. 9418981.8 Filed September 21, 1994.

In the Title

Please change the title of this divisional application as follows: a marked up copy is appended hereto to show changes.

Apparatus and Method for Carrying Out Analysis of Samples Using Semi-Reflective Beam Radiation Inspection.

In the Abstract

Please add the Abstract as follows: a copy of which is submitted herewith as a separate sheet.

An apparatus and method for carrying out analysis of samples using semi-reflective beam radiation inspection in association with an optical disk and an optical reader has an optically transparent substrate having a semi-reflective layer which reflects a portion of the beam of light to form a reflected beam and transmits a portion of the beam of light to form a transmitted beam. The semi-reflective layer includes optically readable encoded information to be read by the reader for controlling the scanning of the reader relative the disk, the encoded information providing modulation of the reflected beam. The disk includes a sample support surface positioned to be scanned by the reader on which the biological, chemical or biochemical sample may be located for optical inspection with the transmitted beam.

In the Claims

Please cancel Claim 1 and add the new claims as follows.

14. An optical disc for use in conducting an optical inspection of a biological, chemical or biochemical sample in association with an optical reader capable of scanning and reading optical discs with a beam of light, said disc comprising:

an optically transparent substrate having a semi-reflective layer which reflects a portion of said beam of light to form a reflected beam and transmits a portion of said beam of light to form a transmitted beam; and

a sample support surface positioned to be scanned by said reader and on which said biological, chemical or biochemical sample may be located, for optical inspection with said transmitted beam.

15. An optical disc according to claim 14 in which said disc includes a biological, chemical or biochemical material attached to said sample support surface.

16. An optical disc according to claim 15 in which said material attached to said sample support is coloured, reflective or fluorescent.

17. An optical disc according to claim 14 which comprises a gel and electrodes for applying a potential across said gel.

18. A system for conducting optical inspection of a biological, chemical or biochemical sample comprising:

a disc according to claim 14; and

an optical disc inspection assembly including:

a radiation source for providing at least one beam of electromagnetic radiation;

a detection system comprising one or more detectors for detecting radiation reflected from and transmitted through said semi-reflective layer.

19. A system according to claim 18 in which said radiation source is located relative to said disc so that said sample support surface is located between said radiation source and said semi-reflective layer.

20. A system according to claim 18 in which said radiation source is located relative to said disc so that said semi-reflective surface is located between said radiation source and said sample support surface.

21. A system according to claim 20 in which said detection system comprises two detectors wherein one of said two detectors is located on the same side of said disc as said

radiation source and the other of said two detectors is located on the side of said disc opposite said radiation source.

22. A system according to claim 21 in which said detection system further comprises a third detector located on the side of said disc opposite said radiation source.

23. A system according to claim 18 in which said detection system comprises a video monitor for viewing the results of said optical inspection.

24. A system according to claim 18 in which said disc comprises a gel and electrodes for applying a potential across said gel.

25. A method of conducting an optical inspection of a biological, chemical or biochemical sample employing a disc adapted to be read by an optical reader, comprising the steps of:

providing such a sample associated with a disc according to claim 14;
conducting an optical inspection of said sample using an optical reader; and
reading said encoded information with said reader.

26. The method of claim 25 in which said steps of conducting an optical inspection includes the substep of using quarter wave light reflected from said disc as part of said conducting and reading steps.

27. A method according to claim 25 in which said conducting includes providing an optical image of said material.

28. A method according to claim 25 in which said optical inspection includes directing a beam of radiation onto said sample to produce detectable radiation which is reflected from and/or transmitted through said sample.

29. A method according to claim 28 in which only detectable radiation which is reflected from said disc is measured.

30. A method according to claim 28 in which detectable radiation which is both reflected from and transmitted through said disc is measured.

31. A method according to claim 29 in which said sample support surface is internal to said disc.

32. An optical disc for use in conducting an optical inspection of a biological, chemical or biochemical sample in association with an optical reader capable of scanning and reading optical discs with a beam of light, said disc comprising:

an optically transparent substrate having semi-reflective means for reflecting a portion of said beam of light to form a reflected beam and transmitting a portion of said beam of light to form a transmitted beam; and

sample support means positioned to be scanned by said reader for receiving said biological, chemical or biochemical sample thereon, the presence of a sample on said support means providing modulation of said reflective beam and said transmitted beam.

33. An optical disc according to claim 32 in which said semi-reflective layer includes optically readable encoded information to be read by said reader for controlling the scanning of said reader relative to said disc,

34. An optical disc according to claim 33 in which said encoded information and said sample on said support means are in optical alignment with respect to said beam of light.

35. A disc according to claim 33 in which said optically readable encoded information is in the form of a circular track or a spiral track.

36. An optical disc according to any one of the preceding claims 33 through 35 in which said encoded information is located in at least an intermediate region of said disc.

37. An optical disc according to any one of the preceding claims 32 through 35 in which said disc includes biological, chemical or biochemical material attached to said sample support means.

38. An optical disc according to claim 37 in which said material attached to said sample support is coloured, reflective or fluorescent.

39. An optical disc according to claim 32 which comprises a gel and electrodes for applying a potential across said gel.

40. A system for conducting optical inspection of a biological, chemical or biochemical sample comprising:

a disc according to claim 32; and an optical disc inspection assembly including:

a radiation source for providing at least one beam of electromagnetic radiation;

and

a detection system comprising one or more detectors for detecting radiation reflected from and transmitted through said semi-reflective means.

41. A system according to claim 40 in which said radiation source is located relative to said disc so that said sample support surface is located between said radiation source and said semi-reflective layer.

42. A system according to claim 41 in which said radiation source is located relative to said disc so that said semi-reflective means is located between said radiation source and said sample support means.

43. A system according to claim 42 in which said detection system comprises two detectors wherein one of said two detectors is located on the same side of said disc as said radiation source and the other of said two detectors is located on the side of said disc opposite said radiation source.

44. A system according to claim 43 in which said detection system further comprises a third detector located on the side of said disc opposite said radiation source.

45. A system according to claim 40 in which said detection system comprises a video monitor for viewing the results of said optical inspection.

46. A system according to claim 40 in which said disc comprises a gel and electrodes for applying a potential across said gel.

47. A method of conducting an optical inspection of a biological, chemical or biochemical sample employing a disc adapted to be read by an optical reader, comprising the steps of:

providing such a sample associated with a disc according to claim 32;
conducting an optical inspection of said sample using an optical reader; and
reading said encoded information with said reader.

48. The method of claim 47 in which said step of conducting an optical inspection includes the substep of using quarter wave light reflected from said disc.

49. A method according to claim 47 in which said conducting includes providing an optical image of said material.

50. A method according to claim 47 in which said optical inspection includes directing a beam of radiation onto said sample to produce detectable radiation which is reflected from and/or transmitted through said sample.

51. A method according to claim 50 in which only detectable radiation which is reflected from said disc is measured.

52. A method according to claim 50 in which detectable radiation which is both reflected from and transmitted through said disc is measured.


53. A method according to claim 50 in which said sample support means is internal to said disc.

REMARKS

The Commissioner is hereby authorized to charge any additional filing fees under 37 C.F.R. § 1.16, or application processing fees under 37 C.F.R. § 1.17, which may be required now or during the pendency of this application, or credit any overpayment to Account No. 16-2230.

Respectfully submitted,

Dated: March 18, 2002


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MARKED UP VERSION OF THE STATEMENT OF RELATED CASES

This Application Is A Divisional Of Copending Application Serial No. [09/643,030] 09/665,930,
Filed [August 21, 2000] September 20, 2000 now United States Letters Patent No. 6,327,031,
Which Is A Continuation Of [Copending] Application Serial No. 09/156,475, Filed September
18, 1998, Now U.S. Patent No. 6,256,088, Which Is A Continuation Of Application Serial No.
08/809,402, Now U.S. Patent No. 5,892,577, Filed July 28, 1997 [Issued On April 6, 1999];
Which Is A 371 Continuation Of PCT/GB95/02186, Filed September 15, 1995, Which Claims
Priority From UK Patent Application No. 9418981.8 Filed September 21, 1994.

204750-62476660

Docket No. 18950-71

MARKED UP COPY OF THE TITLE

Apparatus and Method for Carrying Out Analysis of Samples Using Semi-Reflective [Detector Split] Beam Radiation Inspection.

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ABSTRACT

An apparatus and method for carrying out analysis of samples using semi-reflective beam radiation inspection in association with an optical disk and an optical reader has an optically transparent substrate having a semi-reflective layer which reflects a portion of the beam of light to form a reflected beam and transmits a portion of the beam of light to form a transmitted beam. The semi-reflective layer includes optically readable encoded information to be read by the reader for controlling the scanning of the reader relative the disk, the encoded information providing modulation of the reflected beam. The disk includes a sample support surface positioned to be scanned by the reader on which the biological, chemical or biochemical sample may be located for optical inspection with the transmitted beam.

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